IGS01-17 IP TURBINE RETRACTABLE PACKINGS - BID EVALUATION

Bid Requirments	General Electric - Retractable Packings	Steam & Gas - TSI Sensitized Packings	Turbocare - Retractable Packings	Turbocare - Retractable Packings with Brush Seals
U2 Shaft Packing	$214,895	$164,610	$108,100	$210,100
U2 Spill Strips	$67,353	$6,121	$22,540	$32,140
U2 N1 & N2 Packing	$95,869	$49,506	$39,100	$39,100
U2 Total Installation	$378,117	$220,237	$169,740	$281,340
U1 Shaft Packing	$214,895	$164,610	$108,100	$210,100
U1 Spill Strips	$67,353	$6,121	$22,540	$32,140
U1 N1 & N2 Packing	$95,869	$49,506	$39,100	$39,100
U1 Total Installation	$378,117	$220,237	$169,740	$281,340
Project Total	$756,234	$440,474	$339,480	$562,680
Project Budget	$688,000	$688,000	$688,000	$688,000
Estimated Annual Fuel Savings	-	$698,984	$626,555	$710,543
PV Annual Fuel Savings	-	$4,410,589	$3,953,562	$4,483,526
Benefit / Cost Ratio	-	10.01	11.65	7.97

PV Annual Fuel Savings based on 3% O&M escalation, 8% discount factor, 8 year project life

IP7_005152

VARIABLE CLEARANCE PACKING AND SPILL STRIPS

B. Unit 2 Intermediate-Pressure Turbine Spill Strips

1. Materials

				Bid	
LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	_____	_____
Stage 9 TE R2	"	0.050"	Straight	_____	_____
Stage 9 GE R1	U699C070S0510	0.050"	Straight	_____	_____
Stage 9 GE R2	"	0.050"	Straight	_____	_____
Stage 10 TE R1	U699C072S0530	0.050"	Straight	_____	_____
Stage 10 TE R2	"	0.050"	Straight	_____	_____
Stage 10 GE R1	U699C072S0530	0.050"	Straight	_____	_____
Stage 10 GE R2	"	0.050"	Straight	_____	_____
Stage 11 TE	U699C069S0550	0.050"	Straight	_____	_____
Stage 11 GE	U699C069S0550	0.050"	Straight	_____	_____
Stage 12 TE	U699C071S0565	0.060"	Straight	_____	_____
Stage 12 GE	U699C071B0565	0.060"	Straight	_____	_____
Stage 13 TE	U699C069B0590	0.060"	Straight	_____	_____
Stage 13 GE	U699C069B0590	0.060"	Straight	_____	_____
Stage 14 TE	U699C068B0625	0.060"	Straight	_____	_____
Stage 14 GE	U699C068B0625	0.060"	Straight	_____	_____

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation. _____

UNIT 2 IP SPILL STRIP SUBTOTAL (Materials and Labor) _____

VARIABLE CLEARANCE PACKING AND SPILL STRIPS

C. Unit 2 High-Pressure Turbine Shaft End Packing Upgrade

1. Materials

LOCATION		OEM PART #	DESIGN CLEARANCE	TYPE	Bid RADIAL CLEARANCE	Bid CONTRACT PRICE
N1	G4	U841B262L0868	.015"	Variable	_____	_____
N1	G5	U841B262L0868	.015"	Variable	_____	_____
N1	G6	U841B262L0868	.015"	Variable	_____	_____
N1	G7	U841B262L0768	.015"	Variable	_____	_____
N2	G6	U831B305D1234	.015"	Variable	_____	_____
N2	G7	U831B305D1234	.015"	Variable	_____	_____

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade. _____

UNIT 2 HP SHAFT END PACKING SUBTOTAL (Materials and Labor) _____

UNIT 2 TOTAL UNIT PACKING AND SPILL STRIPS (Material and Labor) _____

VARIABLE CLEARANCE PACKING AND SPILL STRIPS

D. Unit 1 Intermediate-Pressure Turbine Shaft Packing

1. Materials

LOCATION	OEM PART #	DESIGN CLEARANCE	Bid TYPE	Bid RADIAL CLEARANCE	Bid CONTRACT PRICE
N3 G3	U841B275L1234	.015"			
N3 G4	U841B275L1234	.015"			
N3 G5	U841B275L1234	.015"			
N3 G6	U841B275L1434	.015"			
N4 G1	U841B275L0668	.015"			
N4 G2	U841B275L0668	.015"			
N4 G3	U841B275L0668	.015"			
N4 G4	U841B275L0668	.015"			
Stage 9 TE	U831B275D1046	.015"	Variable		
Stage 9 GE	U831B275D0668	.015"	Variable		
Stage 10 TE	U831B275B0846	.015"	Variable		
Stage 10 GE	U831B275B0568	.015"	Variable		
Stage 11 TE	U831B275B0646	.015"	Variable		
Stage 11 GE	U831B275B0468	.015"	Variable		
Stage 12 TE	U831B275B0746	.015"	Variable		
Stage 12 GE	U831B275B0568	.015"	Variable		
Stage 13 TE	U841B275L0646	.015"	Variable		
Stage 13 GE	U841B275L0468	.015"	Variable		
Stage 14 TE	U841B275L0646	.015"	Variable		
Stage 14 GE	U841B275L0468	.015"	Variable		

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine shaft packing installation. _____

UNIT 1 IP SHAFT PACKING SUBTOTAL (Materials and Labor) _____

VARIABLE CLEARANCE PACKING AND SPILL STRIPS

E. Unit 1 Intermediate-Pressure Turbine Spill Strips

1. Materials

				Bid	
LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	_____	_____
Stage 9 TE R2	"	0.050"	Straight	_____	_____
Stage 9 GE R1	U699C070S0510	0.050"	Straight	_____	_____
Stage 9 GE R2	"	0.050"	Straight	_____	_____
Stage 10 TE R1	U699C072S0530	0.050"	Straight	_____	_____
Stage 10 TE R2	"	0.050"	Straight	_____	_____
Stage 10 GE R1	U699C072S0530	0.050"	Straight	_____	_____
Stage 10 GE R2	"	0.050"	Straight	_____	_____
Stage 11 TE	U699C069S0550	0.050"	Straight	_____	_____
Stage 11 GE	U699C069S0550	0.050"	Straight	_____	_____
Stage 12 TE	U699C071S0565	0.060"	Straight	_____	_____
Stage 12 GE	U699C071B0565	0.060"	Straight	_____	_____
Stage 13 TE	U699C069B0590	0.060"	Straight	_____	_____
Stage 13 GE	U699C069B0590	0.060"	Straight	_____	_____
Stage 14 TE	U699C068B0625	0.060"	Straight	_____	_____
Stage 14 GE	U699C068B0625	0.060"	Straight	_____	_____

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation. _____

UNIT 1 IP SPILL STRIP SUBTOTAL (Materials and Labor) _____

VARIABLE CLEARANCE PACKING AND SPILL STRIPS

F. Unit 1 High-Pressure Turbine Shaft End Packing Upgrade

1. Materials

LOCATION		OEM PART #	DESIGN CLEARANCE	TYPE	Bid RADIAL CLEARANCE	Bid CONTRACT PRICE
N1	G4	U841B262L0868	.015"	Variable	_____	_____
N1	G5	U841B262L0868	.015"	Variable	_____	_____
N1	G6	U841B262L0868	.015"	Variable	_____	_____
N1	G7	U841B262L0768	.015"	Variable	_____	_____
N2	G6	U831B305D1234	.015"	Variable	_____	_____
N2	G7	U831B305D1234	.015"	Variable	_____	_____

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade. _____

UNIT 1 HP SHAFT END PACKING SUBTOTAL (Materials and Labor) _____

UNIT 1 TOTAL UNIT PACKING AND SPILL STRIPS (Material and Labor) _____

Intermountain Generating Station - UNIT 2

Intermediate Pressure Turbine Interstage Packings

Opening clearances - 4/12/94

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.038	0.034	0.333	0.336	0.339	0.359	0.348	0.319	0.307	0.314	0.045	0.036	0.054	0.049	0.040
IP - Tend	10	0.025	0.033	0.356	0.365	0.351	0.353	0.347	0.325	0.315	0.318	0.039	0.029	0.048	0.036	0.045
IP - Tend	11	0.028	0.028	0.311	0.310	0.332	0.337	0.341	0.304	0.305	0.300	0.037	0.028	0.036	0.047	0.036
IP - Tend	12	0.032	0.021	0.348	0.356	0.337	0.344	0.331	0.305	0.307	0.323	0.035	0.027	0.044	0.036	0.033
IP - Tend	13	0.030	0.027	0.292	0.285	0.291	0.284	0.284	0.237	0.234	0.238	0.048	0.029	0.054	0.056	0.056
IP - Tend	14	0.047	0.039	0.290	0.298	0.289	0.292	0.293	0.246	0.235	0.238	0.062	0.043	0.073	0.063	0.070
Averages												0.044	0.032	0.051	0.048	0.046

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.032	0.040	0.330	0.326	0.334	0.325	0.352	0.309	0.295	0.310	0.054	0.036	0.063	0.060	0.060
IP - Gend	10	0.022	0.045	0.337	0.340	0.343	0.344	0.355	0.330	0.315	0.321	0.044	0.034	0.050	0.044	0.047
IP - Gend	11	0.017	0.040	0.355	0.347	0.343	0.325	0.349	0.324	0.304	0.306	0.049	0.029	0.057	0.045	0.065
IP - Gend	12	0.017	0.035	0.345	0.339	0.339	0.351	0.355	0.326	0.310	0.317	0.041	0.026	0.052	0.044	0.042
IP - Gend	13	0.050	0.043	0.283	0.297	0.297	0.290	0.317	0.252	0.220	0.244	0.072	0.047	0.088	0.072	0.080
IP - Gend	14	0.018	0.054	0.311	0.299	0.296	0.285	0.296	0.243	0.229	0.241	0.065	0.036	0.077	0.069	0.077
Averages												0.054	0.034	0.064	0.056	0.062

IP7_005158

Intermountain Generating Station - UNIT 1

Intermediate Pressure Turbine Radial Spill Strips

Opening clearances - 4/12/94

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.065	0.052	0.219	0.222	0.219	0.221	0.221	0.187	0.179	0.221	0.067	0.059	0.080	0.074	0.058
IP - Tend	10	0.050	0.057	0.236	0.234	0.238	0.230	0.233	0.217	0.194	0.234	0.061	0.054	0.072	0.063	0.056
IP - Tend	11	0.066	0.063	0.241	0.244	0.241	0.243	0.244	0.231	0.212	0.237	0.070	0.065	0.081	0.070	0.067
IP - Tend	12	0.091	0.053	0.235	0.239	0.238	0.239	0.236	0.214	0.209	0.234	0.077	0.072	0.084	0.081	0.071
IP - Tend	13	0.070	0.054	0.229	0.232	0.229	0.230	0.225	0.218	0.215	0.221	0.064	0.062	0.067	0.064	0.064
IP - Tend	14	0.080	0.076	0.224	0.226	0.224	0.220	0.224	0.206	0.205	0.213	0.084	0.078	0.088	0.086	0.086
Averages												0.071	0.065	0.078	0.073	0.067

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.065	0.060	0.244	0.244	0.245	0.247	0.248	0.246	0.225	0.233	0.067	0.063	0.074	0.064	0.069
IP - Gend	10	0.050	0.057	0.237	0.237	0.233	0.236	0.232	0.242	0.215	0.223	0.056	0.054	0.064	0.049	0.059
IP - Gend	11	0.048	0.065	0.242	0.243	0.244	0.243	0.244	0.230	0.207	0.224	0.065	0.057	0.074	0.063	0.066
IP - Gend	12	0.060	0.071	0.231	0.233	0.230	0.233	0.235	0.197	0.187	0.205	0.080	0.066	0.090	0.084	0.080
IP - Gend	13	0.075	0.088	0.226	0.226	0.228	0.230	0.224	0.211	0.202	0.209	0.087	0.082	0.092	0.088	0.087
IP - Gend	14	0.08	0.078	0.218	0.218	0.229	0.222	0.227	0.211	0.182	0.191	0.089	0.079	0.096	0.087	0.095
Averages												0.074	0.066	0.082	0.072	0.076

IP7_005159

Intermountain Generating Station - UNIT 1

Intermediate Pressure Turbine End Packings

Opening clearances - 4/12/94

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N3	1	0.030	0.029	0.295	0.271	0.287	0.279	0.278	0.277	0.256	0.294	0.036	0.030	0.045	0.042	0.029
N3	2	0.031	0.035	0.288	0.275	0.291	0.293	0.281	0.267	0.263	0.296	0.036	0.033	0.041	0.047	0.023
N3	3	0.022	0.030	0.286	0.280	0.263	0.284	0.279	0.290	0.280	0.306	0.025	0.026	0.037	0.024	0.014
N3	4	0.019	0.025	0.299	0.296	0.300	0.295	0.301	0.290	0.289	0.311	0.024	0.022	0.028	0.029	0.019
Averages												0.030	0.027	0.035	0.033	0.019

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N4	1	0.021	0.063	0.297	0.299	0.297	0.298	0.286	0.297	0.265	0.280	0.044	0.042	0.053	0.036	0.045
N4	2	0.014	0.033	0.310	0.304	0.303	0.314	0.310	0.303	0.274	0.282	0.034	0.024	0.045	0.030	0.036
N4	3	0.010	0.035	0.313	0.311	0.307	0.310	0.315	0.312	0.274	0.280	0.034	0.023	0.046	0.025	0.042
N4	4	0.010	0.032	0.314	0.314	0.306	0.305	0.314	0.314	0.283	0.284	0.031	0.021	0.041	0.021	0.041
Averages												0.035	0.027	0.046	0.028	0.041

Intermountain Generating Station - UNIT 2

Intermediate Pressure Turbine Interstage Packings

Opening clearances - 11/5/93

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.017	0.041	0.345	0.335	0.323	0.344	0.354	0.314	0.321	0.316	0.047	0.029	0.057	0.054	0.049
IP - Tend	10	0.029	0.030	0.346	0.339	0.330	0.341	0.340	0.320	0.326	0.324	0.039	0.030	0.044	0.043	0.040
IP - Tend	11	0.029	0.023	0.339	0.339	0.341	0.347	0.341	0.316	0.317	0.304	0.036	0.026	0.037	0.039	0.041
IP - Tend	12	0.019	0.025	0.354	0.348	0.352	0.360	0.362	0.312	0.339	0.323	0.036	0.022	0.035	0.050	0.039
IP - Tend	13	0.024	0.040	0.292	0.298	0.296	0.323	0.303	0.295	0.276	0.247	0.038	0.032	0.044	0.033	0.045
IP - Tend	14	0.035	0.034	0.306	0.301	0.307	0.317	0.316	0.296	0.278	0.266	0.047	0.035	0.053	0.047	0.054
Averages												0.041	0.029	0.045	0.044	0.044

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.030	0.033	0.356	0.364	0.356	0.352	0.358	0.349	0.349	0.351	0.034	0.032	0.036	0.032	0.037
IP - Gend	10	0.020	0.039	0.355	0.358	0.351	0.339	0.345	0.351	0.337	0.336	0.033	0.030	0.035	0.025	0.042
IP - Gend	11	0.035	0.030	0.349	0.361	0.342	0.342	0.354	0.300	0.306	0.326	0.049	0.033	0.060	0.054	0.050
IP - Gend	12	0.022	0.028	0.350	0.333	0.359	0.360	0.354	0.328	0.331	0.342	0.032	0.025	0.032	0.047	0.026
IP - Gend	13	0.033	0.027	0.297	0.295	0.294	0.290	0.309	0.290	0.261	0.267	0.045	0.030	0.056	0.041	0.055
IP - Gend	14	0.032	0.043	0.298	0.291	0.308	0.303	0.302	0.267	0.269	0.281	0.048	0.038	0.049	0.059	0.046
Averages												0.040	0.031	0.045	0.043	0.043

IP7_005161

Intermountain Generating Station - UNIT 2

Intermediate Pressure Turbine Radial Spill Strips

Opening clearances - 11/5/93

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.063	0.087	0.237	0.207	0.243	0.249	0.236	0.239	0.225	0.218	0.080	0.075	0.078	0.089	0.078
IP - Tend	10	0.054	0.066	0.244	0.252	0.232	0.240	0.242	0.232	0.224	0.226	0.067	0.060	0.075	0.061	0.070
IP - Tend	11	0.050	0.058	0.250	0.243	0.251	0.248	0.245	0.224	0.199	0.204	0.069	0.054	0.077	0.068	0.076
IP - Tend	12	0.057	0.074	0.242	0.243	0.233	0.242	0.251	0.206	0.211	0.218	0.081	0.066	0.090	0.088	0.082
IP - Tend	13	0.056	0.071	0.244	0.243	0.244	0.246	0.245	0.211	0.207	0.229	0.074	0.064	0.083	0.081	0.071
IP - Tend	14	0.066	0.076	0.233	0.249	0.246	0.267	0.258	0.219	0.211	0.193	0.082	0.071	0.088	0.083	0.087
Averages												0.075	0.065	0.082	0.078	0.077

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.084	0.072	0.225	0.223	0.249	0.246	0.246	0.240	0.222	0.231	0.078	0.078	0.078	0.082	0.075
IP - Gend	10	0.055	0.073	0.231	0.257	0.235	0.243	0.240	0.257	0.253	0.243	0.055	0.064	0.056	0.043	0.057
IP - Gend	11	0.061	0.055	0.254	0.243	0.255	0.247	0.255	0.196	0.194	0.196	0.083	0.058	0.088	0.093	0.091
IP - Gend	12	0.066	0.065	0.244	0.233	0.249	0.262	0.246	0.236	0.238	0.231	0.068	0.066	0.067	0.076	0.064
IP - Gend	13	0.068	0.081	0.244	0.238	0.257	0.242	0.234	0.239	0.243	0.237	0.072	0.075	0.064	0.075	0.074
IP - Gend	14	0.065	0.075	0.244	0.26	0.258	0.237	0.236	0.198	0.209	0.225	0.077	0.070	0.077	0.081	0.079
Averages												0.072	0.068	0.071	0.075	0.073

IP7_005162

Intermountain Generating Station - UNIT 2

Intermediate Pressure Turbine End Packings

Opening clearances - 11/5/93

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N3	1	0.036	0.039	0.293	0.293	0.309	0.293	0.299	0.291	0.284	0.300	0.038	0.038	0.037	0.042	0.037
N3	2	0.029	0.025	0.298	0.289	0.314	0.314	0.294	0.281	0.277	0.271	0.031	0.027	0.028	0.038	0.031
N3	3	0.031	0.027	0.301	0.291	0.308	0.300	0.299	0.297	0.272	0.285	0.035	0.029	0.039	0.035	0.037
N3	4	0.025	0.025	0.298	0.305	0.303	0.298	0.307	0.296	0.286	0.291	0.030	0.025	0.033	0.027	0.033
Averages												0.033	0.027	0.033	0.033	0.033

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N4	1	0.033	0.031	0.285	0.282	0.281	0.298	0.298	0.291	0.277	0.281	0.037	0.032	0.045	0.037	0.034
N4	2	0.030	0.035	0.295	0.286	0.287	0.297	0.309	0.288	0.273	0.299	0.043	0.033	0.055	0.048	0.037
N4	3	0.027	0.029	0.310	0.297	0.292	0.300	0.309	0.278	0.272	0.283	0.045	0.028	0.056	0.050	0.046
N4	4	0.029	0.023	0.301	0.307	0.302	0.301	0.307	0.280	0.279	0.296	0.033	0.026	0.040	0.037	0.032
Averages												0.039	0.030	0.049	0.043	0.037

LIST OF SUGGESTED BIDDERS

Mr. Frank Rzepecki, President
Turbine Service and Supply, Inc.
810 Northwest 25th Avenue, Suite 108
Ocala, FL 34475-5772
Telephone: (352) 629-6909
Fax: (352) 629-7425

Mr. Robert Hogan, Project Manager
Chicopee Operations
TurboCare
2140 Westover Road
Chicopee, MA 01022
Telephone: (413) 593-0500, ext. 344
Fax: (413) 593-3424

Mr. Jeremiah Smedra
General Electric Company
PO Box 526440
Salt Lake City, UT 84152-6440
Telephone: (801) 468-5713

TABLE OF CONTENTS

SPECIFICATIONS

PART A - DIVISION A1

NOTICE INVITING PROPOSALS

The Intermountain Power Service Corporation (IPSC) invites sealed bids for furnishing and delivering **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003** in accordance with **Specifications 45556**, available in the Purchasing Section, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT 84624-9546.

Proposals shall be submitted on IPSC's bidding forms. All Proposals shall be filed with the Buyer at the above address on or before _____.

Proposals shall be subject to acceptance within, and irrevocable for, a period of sixty (60) calendar days after date of bid opening.

The right is reserved to reject any and all Proposals.

In the performance of any Contract awarded, the bidder shall not discriminate in employment practices against any employee or applicant for employment because of race, religion, national origin, ancestry, sex, age, or physical disability.

Dated: _____ _____
Buyer

PART B - DIVISION B1

INSTRUCTIONS TO BIDDERS

1. Form, Signature, and Delivery of the Proposals: The bidder's Proposal shall be made on the yellow copy of the Bidding Documents. The specifications printed on white paper shall be retained by the bidder.

   The bidder's name, address, and the date shall be stated in the Proposal. The Proposal shall be signed by the person authorized to bind the bidder.

   The Proposal shall be enclosed in a sealed envelope, plainly marked in the upper left-hand corner with the name and address of the bidder. The envelope shall bear the words "Proposal for," followed by the specifications number, the title of the specifications, and the date and hour of bid opening.

   If the Proposal is mailed, it shall be addressed as follows:

   Purchasing Section
   Intermountain Power Service Corporation
   850 West Brush Wellman Road
   Delta, UT 84624-9546

   If the Proposal is sent by messenger, it shall be delivered to the Administration Building, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT.

2. Interpretations and Addenda: Should a bidder find discrepancies or omissions in the plans, specifications, or other documents, or should there be doubt as to their true meaning, the bidder shall submit to the Buyer a written request for an interpretation or clarification thereof. A request for addenda, interpretation, or clarification shall be delivered to the Buyer marked "Request for Interpretation" and will be received by the Buyer in time to permit a reasonable response before date of bid opening. Any interpretation of, or change in the documents will be made only by addendum issued to each person to whom specifications have been issued and will become a part of any contract awarded. IPSC will not be responsible for any other explanations or interpretations.

3. Correspondence: All inquiries or correspondence to IPSC prior to award of the Contract shall be addressed to the Buyer.

4. Changes or Alternatives: The bidder shall not change any wording in the documents. Any explanations or alternatives offered shall be submitted in a letter attached to the front of the Bidding Documents. Alternatives which do not substantially comply with IPSC's specifications cannot be considered. Language of negation or limitation of any rights, remedies, or warranties provided by law will not be considered part of the Proposal. Bids offered subject to conditions or limitations may be rejected.

5. Specified Materials or Equivalent: Whenever any particular material or process is specified by a patent or proprietary name, by a trade or brand name, or by the name of a manufacturer, such wording is used for the purpose of describing the material or process, fixing the standard of quality required, and shall be deemed to be followed by

the words "or equivalent." The bidder may offer any material or process which shall be the equivalent of that so specified.

6. Language: Everything submitted by the bidder shall be written in the English language.

7. Sales or Use Taxes: Prices quoted by the bidder shall not include any applicable sales or use taxes or Federal Excise Taxes.

8. Duties: Prices quoted by the bidder shall include all applicable duties.

9. Award of Contract: Any award of Contract will be made to the lowest and best, regular responsible bidder. The determination as to which is the lowest and best, regular responsible bidder may be made on the basis of the lowest ultimate cost of the materials or equipment in place and use. The right is reserved to reject any or all Proposals.

   Within thirty (30) calendar days after the date of award of Contract, the successful bidder shall sign the Contract supplied by IPSC. The Contract will be effective upon execution by IPSC.

PROPOSAL

The undersigned hereby proposes to furnish and deliver **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003** to the Intermountain Power Service Corporation in accordance with **Specifications 45556.**

The undersigned agrees, upon the acceptance of this Proposal, to enter into and execute a Contract consisting of the documents identified in Part D of said Specifications for furnishing and delivering the items embraced in the accepted Proposal at the prices named in the accompanying Proposal Schedule.

The undersigned declares under penalty of perjury that such Proposal is genuine, and not sham or collusive, nor made in the interest or in behalf of any person or entity not herein named, and that the bidder has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding, and that the bidder has not in any manner sought by collusion to secure for itself an advantage over any other bidder.

I declare under penalty of perjury under the laws of the state of Utah that the foregoing is true and correct.

Date: _____, 20 _____

Bidder: _____

Address: _____

_____

Signed By: _____
(Authorized Signature)

Print Name: _____

Title: _____

PART C - DIVISION C2

BIDDING DOCUMENTS - PROPOSAL SCHEDULE

Proposal is hereby made to furnish and deliver to IPSC **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003**, f.o.b. Delta, Utah, in accordance with **Specifications 45556** and bidding documents, pages C1-1 and C2-1 through C2-7.

Prices: The price or prices shall be firm.

Cash Terms: A discount for prompt payment is offered of _____ percent for Contract payments made within _____ calendar days after date of acceptance or delivery and receipt of invoice.

Taxes: The foregoing quoted prices are exclusive of all applicable sales and use taxes.

Manufacturer: _____

_____

Location of Point of Manufacture: _____

Form of Business Organization: The bidder shall state below the form of its business organization.

Bidder is: _____ (Corporation, Partnership, Limited Partnership, Individual)

If a partnership, the bidder shall state below the names of the partners. If a corporation, the bidder shall state below the names of the president and of the secretary.

_____ _____

_____ _____

Person to Contact: Should IPSC desire information concerning this Proposal, please contact:

Name: _____ Telephone No: _____

Address: _____

PART D - DIVISION D1

CONTRACT DOCUMENTS

The documents listed in the Table of Contents, the reference specifications, any documents listed below, and the bidding documents as expressly agreed to by IPSC shall constitute the Contract. Said documents are complementary and require complete and finished work. Anything shown or required of the Contractor in any one or more of said documents shall be as binding as if contained in all of said documents. The Contractor shall not be allowed to take advantage of any error, discrepancy, omission, or ambiguity in any document, but shall immediately report to the Chief Operations Officer, in writing, any such matter discovered. The Chief Operations Officer will then decide or correct the same and the decision will be final.

PART E - DIVISION E1

GENERAL CONDITIONS

1. Definitions: The following words shall have the following meanings:

   a. Bidder: The person, firm, or corporation adopting and submitting a Proposal under these Specifications.

   b. Buyer: The Purchasing Agent for IPSC.

   c. Chief Operations Officer: The President and Chief Operations Officer of IPSC or designated representatives acting within the limits of their authority.

   d. Contract Administrator: The IPSC employee designated by the Chief Operations Officer with primary responsibility for administration of the Contract or designated representatives acting within the limits of their authority.

   e. Contractor: The person, firm, or corporation to whom the Contract is awarded.

   f. Directed, Required, Approved, etc.: The words *directed, required, approved, permitted, ordered, designated, prescribed, instructed, acceptable, accepted, satisfactory*, or similar words shall refer to actions, expressions, and prerogatives of the Contract Administrator unless otherwise expressly stated.

   g. Gallon: Liquid volume of 231 cubic inches at 60 degrees Fahrenheit.

   h. IPA: Intermountain Power Agency, the owner of IPP, and a political subdivision of the state of Utah, organized and existing under the Interlocal Co-operation Act, Title 11, Chapter 13, Utah Code Annotated 1953, as amended.

   i. IPP: Intermountain Power Project, consisting of Intermountain Generating Station, Intermountain Railcar, Intermountain Converter Station, Adelanto Converter Station, Intermountain AC Switchyard and associated transmission lines, microwave stations, and support facilities.

   j. IPSC: Intermountain Power Service Corporation, a nonprofit corporation, furnishing personnel to support the Operating Agent in the performance of operation and maintenance.

   k. Operating Agent: The city of Los Angeles Department of Water and Power (LADWP) which is responsible for operation and maintenance for IPP.

   l. Reference Specifications: Those bulletins, standards, rules, methods of analysis or tests, codes, and specifications of other agencies, engineering societies, or industrial associations referred to in these Specifications. These refer to the latest edition, including amendments published and in effect at the date of the Invitation for Proposal, unless specifically referred to by edition, volume, or date.

m. Subcontractor: A person, firm, or corporation, other than the Contractor and employees thereof, who supplies labor or materials on a portion of the work.

n. Ton: The short ton of 2000 pounds.

2. Materials and Work: All materials and work shall comply with these Specifications. All materials and equipment furnished shall be new and unused, but this requirement shall not preclude the use of recycled materials in the manufacturing processes. All work shall be done by qualified workers in a thorough and workmanlike manner. Materials or workmanship not definitely specified, but incidental to and necessary for the work, shall conform to the best commercial practice for the type of work in question.

3. Nondiscrimination: The applicable provisions of Executive Order No. 11246 of September 24, 1965, and Bureau of Land Management regulations pertaining to nondiscrimination in employment in the performance of contracts, are incorporated herein by reference, and made a part hereof as if they were fully set forth herein. During the performance of this Contract, the Contractor shall not discriminate in its employment practices against any employee or applicant for employment because of the employee's or applicant's race, religion, national origin, ancestry, sex, age, or physical disability. All subcontracts awarded under any such contract shall contain a like nondiscrimination provision.

4. Governing Law: This Contract shall be governed by the substantive laws of the state of Utah, regardless of whether rules on the conflict of laws would cause a court to look to the laws of any other state or laws of any other jurisdiction. Any action, in law or in equity, concerning any alleged breach of or interpretation of this Contract, or concerning any tort in relation to this Contract or incidental to performance under this Contract, shall be filed only in the state or federal courts located in the state of Utah.

5. Patents and Intellectual Property: The Contractor shall fully indemnify IPSC, IPA, and the Operating Agent against any and all liability, whatsoever, by reason of any alleged infringement of any intellectual property rights (including, but not limited, to patents, copyrights, trademarks, or trade secrets) on any article, process, method, or application used in any designs, plans, or specifications provided under this Agreement or by reason of use by IPSC of any article or material specified by the Contractor.

6. Contractor's Address and Legal Service: The address given in the Proposal shall be considered the legal address of the Contractor and shall be changed only by written notice to IPSC. The Contractor shall supply an address to which certified mail can be delivered. The delivery of any communication to the Contractor personally, or to such address, or the depositing in the United States Mail, registered or certified with postage prepaid, addressed to the Contractor at such address, shall constitute a legal service thereof.

7. Assignment of Contract Prohibited: The Contractor shall not assign or otherwise attempt to dispose of this Contract, or of any of the monies due or to become due thereunder, unless authorized by the prior written consent of the Chief Operations Officer. No right can be asserted against IPSC, IPA, or the Operating Agent, in law or equity, by reason of any assignment or disposition unless so authorized.

If the Contractor, without such prior written consent, purports to assign or dispose of the Contract or of any interest therein, IPSC, at its option, may terminate the Contract, and IPSC, IPA, and the Operating Agent will be relieved and discharged from any and all liability and obligations to the Contractor, and to any assignee or transferee thereof.

8. Quality Assurance: All materials or equipment furnished and delivered under the Contract will be subject to rigorous inspection by the Contract Administrator. Before offering any material or equipment for inspection or testing, the Contractor shall eliminate all items which are defective or do not meet the requirements of the specifications. If any items or articles are found not to meet the requirements of the specifications, the lot, or any faulty portion thereof, may be rejected. The fact that the materials or equipment have been inspected, tested, or accepted by the Contract Administrator shall not relieve the Contractor of responsibility in case of later discovery of flaws or defects.

   Materials or equipment purchased under the Contract will be inspected at IPSC's specified receiving points and there accepted or rejected. Inspection will include all necessary testing for determining compliance with the specifications. The expense of the initial acceptance tests will be borne by IPSC. All expense of subsequent tests will be charged against the Contractor when due to failure of first-offered materials or equipment to comply with the specifications.

9. Extra Work or Changes by IPSC: IPSC reserves the right at any time before final acceptance of the entire work to order the Contractor to perform extra work, furnish extra material or equipment, or to make changes altering, adding to, or deducting from the work, without invalidating the Contract. Changes shall not be binding upon either IPSC or the Contractor unless made in writing in accordance with this Article.

   Changes will originate with the Chief Operations Officer who will transmit to the Contractor a written request for a Proposal covering the requested change, setting forth the work in detail, and including any required supplemental plans or specifications. Upon receipt of such request, the Contractor shall promptly submit in writing to the Chief Operations Officer a Proposal offering to perform such change, a request for any required extension of time caused by such change, and an itemized statement of the cost or credit for the proposed change. Failure of the Contractor to include a request for extension of time in the Proposal shall constitute conclusive evidence that such extra work or revisions will entail no delay and that no extension of time will be required.

   If the Contractor's Proposal is accepted by IPSC, a written change order will be issued by the Chief Operations Officer stating that the extra work or change is authorized and granting any required adjustments of Contract price and of time of completion.

   The performance of extra work or changes pursuant to the change order shall be in accordance with the terms and conditions of these Specifications. No extra work shall be performed or change made unless pursuant to such written change order, and no claim for an addition to the Contract price shall be valid unless so ordered.

10. Changes at Request of Contractor: Changes may be made to facilitate the work of the Contractor. Such changes may only be made without additional cost to IPSC and

without extension of time. Permission for such changes shall be requested in writing by the Contractor to the Chief Operations Officer.

11. Time is of the Essence and Extensions of Time: Time is of the essence of the Contract. Delivery shall be completed within the times and by the dates specified. Time for delivery shall not be extended except as provided in this Article.

If the Contractor makes a timely written request in accordance with this Article, the time for delivery will be extended by a period of time equivalent to any delay of the whole work which is: (1) authorized in writing by the Chief Operations Officer, (2) caused solely by IPSC, or (3) due to unforeseeable causes (such as war, strikes, or natural disasters) and which delay is beyond the control and without the fault or negligence of the Contractor and subcontractors.

The Contractor shall promptly notify the Chief Operations Officer in writing at both the beginning and ending of any delay, of its cause, its effect on the whole work, and the extension of time claimed. Failure of the Contractor to provide such written notices and to show such facts shall constitute conclusive evidence that no excusable delay has occurred and that no extension of time is required.

The Chief Operations Officer will ascertain the facts and the extent of the delay and will extend the time for delivery when the findings of fact justify such an extension. The Chief Operations Officer's determination will be final and conclusive.

IPSC will be responsible for extensions of time as herein provided, but will not otherwise be responsible in any manner or to any extent for damage directly or indirectly suffered by the Contractor by any delay.

12. Protests and Claims: If the Contractor considers any demand of the Chief Operations Officer to be outside of the requirements of the Contract, or considers any amount of payment, or any record, ruling, or other act or omission by the Chief Operations Officer to be unreasonable, the Contractor shall promptly deliver to the Chief Operations Officer a written statement of the protest and of the amount of compensation claimed.

Upon written request by the Chief Operations Officer, the Contractor shall provide access to all records containing any evidence relating to the claim or protest.

Upon review of the protest, claim, and evidence, the Chief Operations Officer will promptly advise the Contractor in writing of the final decision which will be binding on all parties.

The requirements of this Article shall be in addition to, and shall not be construed as waiving, claims provisions of the Government Code of the state of Utah. The Contractor is deemed to have waived and does waive all claims for extensions of time and for compensation in addition to the Contract price except for protests and claims made and determined in accordance with this Article.

13. Limitation of Liability: It is understood and agreed that IPA shall be the party solely liable to the Contractor for payments under this Contract and for any breaches, defaults,

or for any torts in the performance of or in relation to this Contract by IPA or the Operating Agent or IPSC or any officers, agents, or employees thereof, and the Contractor hereby expressly covenants and agrees that no suit shall be brought by the Contractor against the Operating Agent or IPSC or their officers, agents, or employees or any of the purchasers of power from IPA, but that all rights or remedies that the Contractor may have or that may arise shall be asserted by the Contractor solely against IPA.

14. Independent Contractor: The Contractor shall perform said services as an independent contractor in the pursuit of its independent calling, is not an employee, agent, joint venturer, partner, or other representative of IPSC or the Operating Agent and shall be under the control of IPSC only to provide the services requested and not as to the means or manner by which the work is to be accomplished. The Contractor has no authority to act for, bind, or legally commit IPA, IPSC, or the Operating Agent in any way.

15. Drug Policy: The Contractor shall submit a current copy of its drug policy for review. Intermountain Power Project facilities are a drug free and zero tolerance workplace. The Contractor and its subcontractors' employees who are to perform work at the IPP site shall participate in a drug testing program prior to arrival, and at any additional time(s) during the Contract as IPSC may request.

16. Nonexclusive: This is a nonexclusive Contract. IPSC reserves the right to obtain services from other Contractors.

PART E - DIVISION E2

ADDITIONAL GENERAL CONDITIONS

1. Performance: Work completed during the outage on the intermediate-pressure turbine section shall be guaranteed to produce an improvement in section efficiency equal to the predicted section efficiency improvement. The predicted section efficiency improvement shall be determined from the opening clearance measurements and the expected closing clearances resulting from the new packing and spill strips. The predicted section efficiency improvement shall be agreed upon by the Contractor and IPSC, before the installation of the new packing and spill strips.

   IPSC will conduct a pre-outage performance test to determine the section efficiency of the intermediate-pressure turbine section. After the intermediate-pressure turbine section is disassembled, an opening steam path audit will be conducted by IPSC to determine the efficiency loss attributable to increased packing and spill strip clearances. Steam path repairs, in addition to the packing and spill strip replacement, shall be determined by IPSC following evaluation of the opening steam path audit.

   Prior to closing the intermediate-pressure turbine section, a closing steam path audit shall be conducted by IPSC to determine the expected recovered losses attributable to outage repairs. This information will be used to check the final packing and spill strip clearances and to determine the portion of the total expected recovered losses attributable to the packing and spill strip replacement.

2. Performance Tests: IPSC shall conduct pre and post-outage performance tests to determine compliance with the performance guarantee. Enthalpy drop efficiency tests will be conducted to determined intermediate-pressure turbine section efficiencies. Test data will be measured using plant instrumentation calibrated by IPSC, or by calculated values agreed upon by the Contractor and IPSC where measurements are impractical or suspect. Tests will be conducted at turbine throttle valves-wide-open and steady load.

   The general methods outlined in the ASME test codes will be used as a guide for test procedures; however, code technicalities shall not void the validity of these tests. The Contractor shall have the right to witness the tests.

   In addition to the above test procedures, IPSC may utilize a third party contractor to conduct ASME Performance Test Code type tests (ASME PTC-6S) for the pre and post-outage testing. IPSC further reserves the right to use a third party contractor to conduct the opening and closing steam path audits. The results of the pre and post-outage performance tests and steam path audits shall then be binding on the parties of this Contract.

   All reasonable effort will be made to conduct the pre-outage performance tests within four (4) weeks before the start of the outage and the post-outage test within four (4) weeks of the initial startup following the outage.

3. Guarantee: The Contractor shall guarantee for a minimum period of one (1) year after delivery that all materials and workmanship furnished shall be free from defects. The Contractor shall guarantee that the intermediate-pressure turbine section meets the performance conditions as set forth in these Specifications.

If the field performance tests indicate that such performance conditions are not met, then IPSC shall be entitled to damages, excluding consequential damages, for such deficient performance. The damages for failing to meet the performance conditions as set forth in these Specifications shall be ten (10) percent of the contract amount. It is agreed between the Contractor and IPSC that it would be impossible or extremely difficult to determine actual damages for failing to meet the guaranteed performance and that the above agreed amounts are reasonable liquidated damages and do not constitute a penalty.

The Contractor shall repair or replace, f.o.b. contract delivery point, all defective materials and workmanship.

4. Payment: Payment will be made within thirty (30) calendar days after completion of outage and performance tests, and receipt of the invoice.

5. Regulations, Permits, Licenses, and Warrants: The Contractor shall comply with all applicable federal, state, and local regulations including, but not limited to, Federal and State Occupational Safety Health Administration (OSHA), as said regulations relate to this Contract. In addition, the Contractor shall ensure that all permits, licenses, and warrants relating to the Contract be acquired.

6. Invoices: Invoices shall be submitted in duplicate to Accounts Payable, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT 84624-9546.

   Each invoice shall show the Contract number. In all cases, the amount of the applicable sales tax or use tax shall be separately stated on the invoice.

7. Letters to IPSC: All inquiries relating to these Specifications prior to award of the Contract shall be addressed to the Buyer.

   After award of Contract, all letters pertaining to performance of the Contract shall be addressed as follows:

   S. Gale Chapman
   President and Chief Operations Officer
   Intermountain Power Service Corporation
   850 West Brush Wellman Road
   Delta, UT 84624-9546

   Attention: Contract Administrator

   Regarding Contract No. **02-45556**

PART F - DIVISION F1

DETAILED SPECIFICATIONS - SPECIAL CONDITIONS

1. General: Under the terms of the Contract, the Contractor shall furnish and deliver **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003.**

2. Schedule: Coordination and scheduling of work will be essential for efficient use of equipment and manpower due to the tight overhaul schedule.

   The projected work schedule will be released to the Contractor within two (2) weeks of the award of the Contract so that IPSC's and the Contractor's work can be coordinated. IPSC may change the schedule to meet outage requirements.

   The Contractor shall schedule delivery of equipment and materials in accordance with the following listed dates:

   a. Unit 2: The outage will commence on March 2, 2002, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 4, 2002. Outage work shall be completed and the unit put on turning gear no later than March 29, 2002. The unit will be released for normal operation on April 1, 2002.

   b. Unit 1: The outage will commence on March 1, 2003, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 3, 2003. Outage work shall be completed and the unit put on turning gear no later than March 28, 2003. The unit will be released for normal operation on March 31, 2003.

3. Printed Documents: All printed documents including drawings and instruction books, if applicable, shall be in the English language. All units of measurement shall be in the English foot-pound-second system.

4. Option to Renew: IPSC will have the right and option at any time during the original Contractual Period to renew the Contract for a period of one (1) year after date of expiration of the original Contractual Period at the same prices and terms and conditions for such extended or option period.

   In the event that said option is exercised by IPSC, it will be exercised by the issuance and delivery to the Contractor of an order therefor by the Buyer or a duly authorized representative. The Contract executed for the original Contractual Period shall remain in effect for any such extended or option period.

5. Indemnity Clause: The Contractor undertakes and agrees to indemnify, hold harmless, and at the option of the Intermountain Power Agency, defend Intermountain Power Agency, Intermountain Power Service Corporation, Los Angeles Department of Water and Power, and any and all of their boards, officers, agents, representatives, employees, assigns and successors in interest from and against any and all suits and causes of action, claims, charges, costs, damages, demands, expenses (including, but

not limited to, reasonable attorneys' fees and cost of litigation), judgments, civil fines and penalties, liabilities or losses of any kind or nature, including, but not limited to, violations of regulatory law, death, bodily injury or personal injury to any person, including the Contractor's employees and agents, or damage or destruction to any property of either party hereto, or third persons in any manner arising by reason of or incident to the performance of this Contract on the part of the Contractor, or the Contractor's officers, agents, employees, or subcontractors of any tier, except for the sole negligence of IPA, IPSC, LADWP, or their boards, officers, agents, representatives, or employees.

6. Insurance Requirements: Prior to the start of work, but not later than thirty (30) days after date of the award of Contract, the Contractor shall furnish IPSC evidence of coverage from insurers acceptable to IPSC and in a form acceptable to the Insurance Analyst for IPSC. Such insurance shall be maintained by the Contractor and at the Contractor's sole cost and expense.

Such insurance shall not limit or qualify the liabilities and obligations of the Contractor assumed under the Contract. IPA, IPSC, or LADWP will not, by reason of its inclusion under these policies, incur liability to the insurance carrier for payment of premium for these policies.

Any insurance carried by IPA, IPSC, or LADWP which may be applicable will be deemed to be excess insurance and the Contractor's insurance is primary for all purposes despite any conflicting provision in the Contractor's policies to the contrary.

Should any portion of the required insurance be on a "Claims Made" policy, the Contractor shall, at the policy expiration date following completion of the work, provide evidence that the "Claims Made" policy has been renewed or replaced with the same limits and terms and conditions of the expiring policy, or that an extended discovery period has been purchased on the expiring policy at least for the Contract under which the work was performed.

Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a breach of Contract, upon which the Contract may be terminated or suspended.

a. Workers' Compensation/Employer's Liability:

Workers' Compensation Insurance covering all of the Contractor's employees in accordance with the laws of any state in which the work is to be performed and including Employer's Liability Insurance, and as appropriate, Broad Form All States Endorsement, Voluntary Compensation, Longshoremen's and Harbor Workers' Compensation, Jones Act, and Outer-Continental Shelf coverages. The limit for Employer's Liability coverage shall be not less than $1 million each accident and shall be a separate policy if not included with Workers' Compensation coverage. Evidence of such insurance shall be an endorsement to the policy providing for a thirty (30) day prior written notice of cancellation or nonrenewal of a continuous policy to IPSC, by receipted delivery, and a Waiver of Subrogation in favor of IPSC, IPA, and LADWP, its officers, agents, and

employees. Workers' Compensation/Employer's Liability exposure may be self-insured provided that IPSC is furnished with a copy of the certificate issued by the state authorizing the Contractor to self-insure. The Contractor shall notify IPSC, by receipted delivery, as soon as possible of the state withdrawing authority to self-insure.

b. Commercial General Liability:

Commercial General Liability with Blanket Contractual Liability, Products and Completed Operations, Broad Form Property Damage, Premises and Operations, Independent Contractors, and Personal Injury coverages included. Such insurance shall provide coverage for total limits actually arranged by the Contractor, but not less than $2 million Combined Single Limit and be specific for this Contract. Should the policy have an aggregate limit, such aggregate limits should not be less than $4 million. Umbrella or Excess Liability coverages may be used to supplement primary coverages to meet the required limits. Evidence of such coverages shall be on IPSC's Additional Insured Endorsement Form or on an endorsement to the policy acceptable to IPSC and provide for the following:

(1) To include IPA, IPSC, LADWP, and their officers, agents, and employees as additional insured with the Named Insured for the activities and operations under the Contract.

(2) That the insurance is primary and not contributing with any other insurance maintained by IPSC.

(3) A Severability-of-Interest of Cross-Liability Clause such as: "The policy to which this endorsement is attached shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the company's liability."

(4) That the policy shall not be subject to cancellation, change in coverage, reduction of limits or nonrenewal of a continuous policy, except after written notice to IPSC, by receipted delivery, not less than thirty (30) days prior to the effective date thereof.

(5) A description of the coverages included under the policy.

c. Commercial Automobile Liability:

Commercial Automobile Liability covering the use of owned, nonowned, hired, and leased vehicles for total limits actually arranged by the Contractor, but not less than $1 million Combined Single Limit. Such insurance shall include Contractual Liability coverage. The method of providing evidence of insurance and requirements for additional insureds, primary insurance, notice of cancellation, and Severability-of-Interest shall be the same as required in the Commercial General Liability Section of these terms and conditions.

d. Professional Liability:

The Contractor shall provide Professional Liability Insurance with Contractual Liability coverage included, covering the Contractor's liability arising from errors and omissions made directly or indirectly during the execution of this Agreement and shall provide coverage of $5 million, Combined Single Limit. Evidence of such insurance shall be in the form of a special endorsement of insurance.

e. Other Conditions:

(1) Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a major breach of Contract, upon which IPSC may immediately terminate or suspend the Agreement, or at its option, procure such insurance and submit a claim against Contractor's Performance Bond, deduct the cost thereof, including an administrative charge of two (2) percent, from any monies due the Contractor, or shall be immediately reimbursed by the Contractor for such costs upon demand.

(2) The Contractor shall be responsible for all subcontractors compliance with these insurance requirements.

7. Transportation: All shipments of hazardous materials under this Contract shall be handled in accordance with current U.S. Department of Transportation regulations and other applicable federal, state, and local laws and regulations.

8. Safety: The Contractor agrees it is familiar with the risks of injury associated with the work, has reviewed the work to be performed, inspected the job site with an IPSC representative, and has determined that no unusual or peculiar risk of harm exists with regard to the work to be performed at the job site.

The Contractor further agrees it shall, at all times, provide at the job site a competent supervisor(s) familiar with IPSC's and the industry's safety standards to ensure compliance with all federal, state, and local regulations pertaining to safety, including, but not limited to, Federal and State OSHA, as said regulations relate to the work to be performed under the Contract. Although IPSC assumes no responsibility to oversee or supervise the work, IPSC reserves the right to review safety programs and practices and make recommendations to the Contractor. Any such review or recommendation by IPSC will not increase IPSC's liability or responsibility and shall not relieve the Contractor from providing a safe work environment and complying with legal requirements.

The Contractor shall comply with IPSC's safety and equipment requirements prior to starting work. Worker protective clothing, which includes, but is not limited to, hardhats, safety glasses, safety shoes, gloves, respirators, earplugs, safety harnesses, and face shields shall be provided by the Contractor.

Prior to starting work, all of the Contractor's personnel shall attend a safety orientation taught by a representative of IPSC. At the Contractor's option, a supervisor may attend

the orientation taught by IPSC, then present the orientation to the remainder of the Contractor's personnel. In this case, a roll shall be given to IPSC which lists each person who received the orientation and the date it was received.

9. Material Safety Data Sheets: The Contractor shall furnish a Material Safety Data Sheet (MSDS) for all hazardous materials furnished under this Contract. The MSDS shall be furnished to IPSC on, or prior to, the date of the first delivery of the materials or equipment.

   If the specifications require that the Contractor furnish instruction books, the Material Safety Data Sheets shall also be included in such books.

10. Contract Termination: IPSC reserves the right, by giving written notice to the Contractor, to terminate the whole or any part of this Contract at IPSC's convenience, whether or not the Contractor is in default. In the event of termination, IPSC will pay the Contractor reasonable and proper termination costs; however, if the Contractor's Proposal includes cancellation charges, payment for termination costs shall not exceed the cancellation charges set forth therein.

    Termination of the work shall not constitute the basis for a claim for damages or loss of anticipated profits and the Contractor hereby releases IPSC from any such claim.

    The Contractor shall, after consultation with IPSC, take all reasonable steps to minimize the costs related to termination.

    The Contractor shall provide IPSC with an accounting of costs claimed, including adequate supporting information and documentation and IPSC may, at its expense, audit the claimed costs and supporting information and documentation.

PART F - DETAILED SPECIFICATION

DIVISION F2 - GENERAL DESIGN AND PACKING REQUIREMENTS

1. General: This Section contains the detailed description and supplementary requirements for materials and services included under these Specifications.

2. Scope: The work under these Specifications shall include supply of variable clearance packing and reduced clearance spill strips for the intermediate-pressure turbine sections and upgrade of currently installed retractable packings on the N1 and N2 high-pressure end packings of the IGS and miscellaneous materials and services required for proper installation and operation.

   The materials to be furnished shall include the following:

   a. Unit 2:

      - Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).
      - Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).
      - Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).
      - Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).
      - Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).
      - Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).

   b. Unit 1:

      - Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).
      - Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).
      - Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).
      - Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).
      - Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).

- Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).

c. Removal of Restrictions: Packing ring restrictions or teeth shall not be removed from any segment without IPSC review and approval.

d. Design Conditions: The turbine is a GE S2 design with a name plate rating of 820 MWG and a tested capability at design throttle conditions at 875 MWG. It is a single reheat, tandem-compound, 3600 rpm, condensing extraction-type turbine. Design reheat turbine inlet steam conditions are 550 psig and 1000°F.

3. IPSC Responsibilities: IPSC will be responsible for the disassembly, inspection, and reassembly of the high-pressure turbine and intermediate-pressure turbine.

IPSC will provide a contractor to do abrasive blast cleaning and an NDE contractor to perform nondestructive examination of turbine components. IPSC will be responsible for cleaning components requiring hand cleaning.

The intermediate-pressure rotor, diaphragms, packing boxes, and packing hardware will be removed, sand blasted, and NDE inspected.

All components will be marked and located in an accessible location.

All steam joint surfaces will be cleaned and stoned.

In the event the rotor or any steam packing component is sent off plant site for repairs, the Contractor will be notified regarding the location of the repair facility and the return shipment schedule.

a. Services: The following services will be provided by IPSC:

- Overhead crane and operator to unload, setup tooling, and packing ring holders for measurement and installation of packing.
- Nominal 480-volt alternating current electrical service.
- Craft labor assistance as required.
- IPSC will align diaphragms and packing boxes prior to installation of packing segments.
- Sandblasting equipment and services.
- NDE of components.

4. Contractor Responsibilities: The Contractor shall be responsible for the following:

- The Contractor shall provide detailed estimates of heat rate and power savings for each stage of the IP Turbine. These estimates shall be required for the bid

evaluation based on previous outage measurements, and for the predicted section efficiency improvement based on the current opening measurements.

- The Contractor shall be responsible for the technical services associated with the packing installation including technical direction, engineering support, and all measurements during the scheduled overhaul.

- The Contractor's personnel shall perform all machining required for installation of packing and spill strips including butt clearances, retaining pin slots, and final radial clearances.

- The Contractor shall install packing rings and spill strips into the packing ring holders during reassembly of the intermediate-pressure turbine section.

- The Contractor shall provide all tooling and machine tools necessary to ensure proper fit of the packing and spill strip segments.

- The Contractor shall provide a final report of all work accomplished during the outage.

a. Opening Inspection: The Contractor shall perform the following tasks after the unit is open for inspection:

  - Measure rotor diameters at packing fit locations.

  - Measure critical hook fit dimensions on the steam packing holders to identify existing distortion.

  - Verify dimensions of steam packing and spill strips supplied under these Specifications for installation in the unit.

  - Re-engineer and upgrade currently installed retractable end packings in the high- pressure turbine N1 (grooves 4 - 7) and N2 (grooves 6 - 7).

  - All dimensions and findings of the open inspection shall be submitted to IPSC as requested and included in the final report.

5. Additional Information: The following Appendix information is included with these Specifications:

- IP Turbine Cross-Sectional Drawing.

- IP Rotor Clearance Diagram - Generator End.

- IP Rotor Clearance Diagram - Turbine End.

- Unit 1 - Rotor Clearances from 1994 inspection.

- Unit 2 - Rotor Clearances from 1995 inspection.

MEMORANDUM

INTERMOUNTAIN POWER SERVICE CORPORATION

TO: S. Gale Chapman

FROM: Dennis K. Killian

DATE: November 5, 2001

SUBJECT: IGS 01-17 Variable Clearance Packing for IP Turbine Sections

Please review and approve the attached design package for Capital Project IGS 01-17. This project concerns the installation of variable clearance packing and reduced clearance spill strips in the intermediate pressure turbine sections of both Unit 1 and Unit 2.

The Purchase Requistion and Contract Detailed Specifications for this project are also attached with this package for your review and approval.

This project is an identified Capital Project for the 2001-2 and 2002-3 budget years.

If you have any questions or need more information, please contact David Spence at Extension 6449 or Aaron Nissen at Extension 6482 with any questions concerning this project.

DCS
Attachments

Recommended Bidders List for IGS01-17 IP Turbine Variable Clearance Packings

Turbine Service and Supply Inc.
Attn: Frank Rzepecki, President
810 NW 25th Ave.
Suite 108
Ocala, FL 34475-5772
Tel. (352) 629-6909
Fax (352) 629-7425

TurboCare
Attn: Robert Hogan, Project Manager
Chicopee Operations
2140 Westover Road
Chicopee, MA 01022
Tel. (413) 593-0500 Ext. 344
Fax (413) 593-3424

General Electric Company
Attn: Jeremiah Smedra
P.O. Box 526440
Salt Lake City, UT 84152-6440
Tel. (801) 468-5713

INTERMOUNTAIN POWER SERVICE CORPORATION

Date:
Req./PA No: 173417
P.O. No:
Vendor:
Terms:
FOB:
Ship Via:
Conf. To:

☒ REQUISITION FOR CAPITAL EQUIPMENT

☐ PURCHASE AUTHORIZATION FOR EXPENSE ITEMS

Purpose of Materials, Supplies or Services:

Purchase variable clearance packing and reduced clearance spill strips for installation in the intermediate pressure turbine sections of both Unit 1 and Unit 2. This is identified Capital Project IGS01-17 for the 2001-02 and 2002-03 budget

Suggested Vendor: Competitive Bid

Account No. 001TGX-402

Work Order No. 00-7718-0

Project No. IGS 01-17

Qty	Unit	Description Noun Adjective	Catalog #	Seller or Manufacturer	Unit Cost	Extension
1	1	Unit 2: All materials, supervision, labor, tools, and equipment for variable clearance diaphragm and reduced clearance spill strip installation in the intermediate pressure turbine section during the Spring 2002 outage.				$342,000.00
1	1	Unit 1: All materials, supervision, labor, tools, and equipment for variable clearance diaphragm and reduced clearance spill strip installation in the intermediate pressure turbine section during the Spring 2003 outage.				$342,000.00
		TOTAL ESTIMATED COST				$684,000.00

Remarks: Contact D. Spence at 6449 or A. Nissen at 6482 with questions

Delivery requested by [Date] 03-01-02 Originator David Spence

Dept. Mgr/Supt. Date Station Manager Date Operating Agent Date

IP7_005190

INTERMOUNTAIN POWER SERVICE CORPORATION

Safety Consideration List

CP# IGS01-17 Project Title Variable Clearance Packing for IP Turbine Sections Date 2/14/02

Project Engineer David Spence Supervising Engineer (Initials) _____

Item #	Safety Consideration	Required Safety Measures
1	All personnel performing work shall follow the safe, approved work methods and procedures outlined in the IPSC Safety Code.	Work shall not be started until all necessary and appropriate safety precautions have been taken including a safety orientation meeting.
2	All personnel shall adhere to the Intermountain Generating Station Clearance Procedure to work on equipment that is tagged out.	Project Engineer shall sign on to the turbine-generator clearance and maintain a group tagout sheet. Contractors shall sign on to the group tagout sheet while performing work.
3	Each person shall know the characteristics of the materials used for the work including the requirements for safe use and handling of identified hazardous materials.	Review MSDS for each hazardous material used and take all necessary safety and environmental precautions.

Reviewed by IPSC Safety Dept. _____ Accepted by Construction Supv. _____

PART E - DIVISION E2

ADDITIONAL GENERAL CONDITIONS

1. Performance: Work completed during the outage on the Intermediate pressure turbine section shall be guaranteed to produce an improvement in section efficiency equal to the predicted section efficiency improvement. The predicted section efficiency improvement shall be determined from the opening clearance measurements and the expected closing clearances resulting from the new packing and spill strips. The predicted section efficiency improvement shall be agreed upon by the Contractor and IPSC, before the installation of the new packing and spill strips.

   IPSC will conduct a preoutage performance test to determine the section efficiency of the intermediate pressure turbine section. After the intermediate pressure section is disassembled, an opening steam path audit will be conducted by IPSC to determine the efficiency loss attributable to increased packing and spill strip clearances. Steam path repairs in addition to the packing and spill strip replacement shall be determined by IPSC following evaluation of the opening steam path audit.

   Prior to closing the intermediate pressure turbine section, a closing steam path audit shall be conducted by IPSC to determine the expected recovered losses attributable to outage repairs. This information will be used to check the final packing and spill strip clearances and to determine the portion of the total expected recovered losses attributable to the packing and spill strip replacement.

2. Performance Tests: IPSC shall conduct pre and post-outage performance tests to determine compliance with the performance guarantee. Enthalpy drop efficiency tests will be conducted to determined IP turbine section efficiencies. Test data will be measured using plant instrumentation calibrated by IPSC, or by calculated values agreed upon by the Contractor and IPSC where measurements are impractical or suspect. Tests will be conducted at turbine throttle valves-wide-open and steady load.

   The general methods outlined in the ASME test codes will be used as a guide for test procedures; however, code technicalities shall not void the validity of these tests. The Contractor shall have the right to witness the tests.

   In addition to the above test procedures, IPSC may utilize a third party contractor to conduct ASME Performance Test Code type tests (ASME PTC-6S) for the pre and post-outage testing. IPSC further reserves the right to use a third party contractor to conduct the opening and closing steam path audits. The results of the pre and post-outage performance tests and steam path audits shall then be binding on the parties of this Contract.

   All reasonable effort will be made to conduct the pre-outage performance tests within four (4) weeks before the start of the outage and the post-outage test within four (4) weeks of the initial startup following the outage.

3. Guarantee: The Contractor shall guarantee that the intermediate pressure turbine section meet the performance conditions as set forth in these specifications.

   If the field performance tests indicate that such performance conditions are not met, then IPSC shall be entitled to damages, excluding consequential damages, for such deficient performance. The damages for failing to meet the performance conditions as set forth in these specifications shall be 10 percent of the contract amount. It is agreed between the Contractor and IPSC that it would be impossible or extremely difficult to determine actual damages for failing to meet the guaranteed performance and that the above agreed amounts are reasonable liquidated damages and do not constitute a penalty.

   The Contractor shall repair or replace, F.O.B. contract delivery point, all defective materials and workmanship.

4. Payment: Payment will be made within thirty (30) calendar days after completion of outage and performance tests, and receipt of the invoice.

5. Regulations, Permits, Licenses, and Warrants: The Contractor shall comply with all applicable federal, state, and local regulations pertaining to safety including, but not limited to, Federal and State OSHA, as said regulations relate to this Contract. In addition, the Contractor shall assure that all permits, licenses, and warrants relating to the Contract be acquired.

PART F - DIVISION F1

DETAILED SPECIFICATION - SPECIAL CONDITIONS

1. General: Under the terms of the Contract, the Contractor shall furnish, deliver, and install Diaphragm Packing, End Packing and Spill Strips ordered by IPSC.

2. Schedule: Coordination and scheduling of work will be essential for efficient use of equipment and manpower due to the tight overhaul schedule.

   The projected work schedule will be released to the Contractor within two (2) weeks of the award of the Contract so that IPSC's and the Contractor's work can be coordinated. IPSC may change the schedule to meet outage requirements.

   The Contractor shall schedule delivery of equipment and materials in accordance with the following listed dates:

   a. Unit 2: The outage will commence on March 2, 2002, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 4, 2002. Outage work shall be completed and the unit on turning gear no later than March29, 2002. The unit will be released for normal operation on April 1, 2002.

   b. Unit 1: The outage will commence on March 1, 2003, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 3, 2003. Outage work shall be completed and the unit on turning gear no later than March 28, 2003. The unit will be released for normal operation on March 31, 2003.

3. Printed Documents: All printed documents including drawings and instruction books, if applicable, shall be in the English language. All units of measurement shall be in the English foot-pound-second system.

4. Indemnity Clause: The Contractor undertakes and agrees to indemnify, hold harmless, and at the option of the Intermountain Power Agency, defend Intermountain Power Service Corporation, Los Angeles Department of Water and Power, and any and all of their boards, officers, agents, representatives, employees, assigns and successors in interest from and

PART F - DETAILED SPECIFICATION

DIVISION F2 - GENERAL DESIGN AND PACKING REQUIREMENTS

1. General: This section contains the detailed description and supplementary requirements for materials and services included under these specifications.

2. Scope: The work under these specifications shall include supply of variable clearance packing and reduced clearance spill strips for the intermediate pressure turbine sections and upgrade of currently installed retractable packings on the N1 and N2 high pressure end packings of the Intermountain Generating Station and miscellaneous materials and services required for proper installation and operation.

   The materials to be furnished shall include the following:

   a. Unit 2: Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).

      Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).

      Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).

      Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).

      Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).

      Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).

   b. Unit 1: Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).

      Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).

      Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).

      Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).

      Supply four (4) sets of upgraded design springs for N1 packing box grooves four

(4) through seven (7).

Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).

c. Removal of Restrictions: Packing ring restrictions or teeth shall not be removed from any segment without IPSC review and approval.

d. Design Conditions: The turbine is a GE S2 design with a name plate rating of 820 MWG and a tested capability at design throttle conditions at 875 MWG. It is a single reheat, tandem-compound, 3600 rpm, condensing extraction type turbine. Design reheat turbine inlet steam conditions are 550 psig and 1000°F.

3. IPSC Responsibilities: IPSC will be responsible for the disassembly, inspection, and reassembly of the high pressure turbine and intermediate pressure turbine.

IPSC will provide a contractor to do abrasive blast cleaning and an NDE contractor to perform nondestructive examination of turbine components. IPSC will be responsible for cleaning components requiring hand cleaning.

The intermediate pressure rotor, diaphragms, packing boxes, and packing hardware will be removed, sand blasted, and NDE inspected.

All components will be marked and located in an accessible location.

All steam joint surfaces will be cleaned and stoned.

In the event the rotor or any steam packing component is sent off plant site for repairs, the Contractor will be notified regarding the location of the repair facility and the return shipment schedule.

a. Services: The following services will be provided by IPSC:

Overhead crane and operator to unload, setup tooling, and packing ring holders for measurement and installation of packing.

Nominal 480 volt alternating current electrical service.

Craft labor assistance as required.

IPSC will align diaphragms and packing boxes prior to installation of packing segments.

Sandblasting equipment and services.

NDE of components.

4. Contractor Responsibilities The Contractor shall be responsible for the following:

The Contractor shall provide a detailed estimate of savings

The Contractor shall be responsible for the technical services associated with the packing installation including technical direction, engineering support, and all measurements during the scheduled overhaul.

Contractor personnel shall perform all machining required for installation of packing and spill strips including butt clearances, retaining pin slots, and final radial clearances.

The Contractor shall install packing rings and spill strips into the packing ring holders during reassembly of the IP turbine section.

The Contractor shall provide all tooling and machine tools necessary to ensure proper fit of the packing and spill strip segments.

The Contractor shall provide a final report of all work accomplished during the outage.

a. Opening Inspection: The Contractor shall perform the following tasks after the unit is open for inspection:

Measure rotor diameters at packing fit locations.

Measure critical hook fit dimensions on the steam packing holders to identify existing distortion.

Verify dimensions of steam packing and spill strips supplied under these specifications for installation in the unit.

Re-engineer and upgrade currently installed retractable end packings in the high pressure turbine N1 (grooves 4 - 7) and N2 (grooves 6 - 7).

All dimensions and findings of the open inspection shall be submitted to IPSC as requested and included in the final report.

5. Additional Information: The following information required to bid is included with these specifications:

IP TURBINE CROSS-SECTIONAL DRAWING
IP ROTOR CLEARANCE DIAGRAM
UNIT 1 AS-FOUND ROTOR CLEARANCE FROM LAST INSPECTION
UNIT 2 AS-FOUND ROTOR CLEARANCE FORM LAST INSPECTION

Additional drawings, documents, and outage inspection data will be available to the Contractor at the plant site.

INTERMOUNTAIN POWER SERVICE CORPORATION

Date 02/14/02

CONSTRUCTION QUALITY PLAN AND VERIFICATION REPORT

Rev. No. 1

Project No. IGS01-17 Project Description Variable Clearance Packing for IP Turbine Sections

Project Designer David Spence Project Constructor TurboCare Inc. Q/A Coordinator David Spence

Item No.	Job Component	Responsible Inspector	References	Special Instructions	Verifier Initials & Date
1	Measure rotor diameters at packing fit locations.	D. Spence G. Christensen		Measurements at three locations.	
2	Measure and evaluate hook-fit dimensions on steam packing holders to identify distortion.	D. Spence G. Christensen		Evaluate to determine roundness of fits and need for additional machining to fit packing ring segments.	
3	Verify steam packing and spill strip dimensions with Contractor for proper fit.	D. Spence	Project detailed specs.	Verify packing ring segments and spill strips will fit properly	
4	Verify proper segment butt clearances after machining.	D. Spence	OEM specs.	OEM should provide field drawings and lists for verification.	
5	Measure and verify closing clearances.	D. Spence G. Christensen	QA/QC Man.	Measure radial clearances with packing in the closed position. Measure tooth heights at 8 locations per steam path audit requirements.	
6	Verify packing retaining pins are installed and staked in each fit.	D. Spence P. Do	QA/QC Man.	Inspection performed just prior to setting upper half diaphragms and packing boxes.	
7	Pre and post-outage IP enthalpy drop efficiency tests to verify performance guarantees.	D. Spence G. Christensen	Project detailed specs.	Use test results and steam path audit calculations to determine the effect of retractable interstage packings and reduced clearance spill strips.	

MEMORANDUM

INTERMOUNTAIN POWER SERVICE CORPORATION

TO: Norm Mincer

FROM: Dennis K. Killian

DATE: February 14, 2002

SUBJECT: Work Package Transmittal for IGS01-17
Variable Clearance Packings for IP Turbine Sections

Attached is the detailed work package for Capital Project IGS01-17. This project will replace conventional interstage packings on both Unit's IP turbines with variable clearance packings and reduced clearance spill strips. All materials and labor will be provided by TurboCare under PO No. 02-22354. Please use sub-work orders of WO #00-7718-0 for any IPSC work on this project.

Please refer to the Summary of Work Scope for requested Maintenance Department support. Please add this project to the outage schedule and have Planning receive and stage the new packings and spill strips. Note that some packing rings have already been shipped. Turbocare needs some space on the turbine deck and electrical service for their machines during the outage.

Work on Unit #2 will start during the Spring 2002 outage as soon as the IP turbine upper diaphragms are removed and will last approximately 4 days. New packings for U1 will begin arrive in January 2003 for installation during the Spring 2003 outage.

There will be no drawings or document revisions for this project.

David Spence is the Project Engineer and Contract Administrator for this project. Please call him at extension 6449 if you have questions regarding this project.

DCS/JKH:
Attachments

INTERMOUNTAIN POWER SERVICE CORPORATION

CAPITAL PROJECT IGS01-17

W.O. # 00-7718-0 Date October 30, 2001

PROJECT APPROVAL	Title Retractable Packings for IP Turbines Budget Source: 2001-2002 Capital Budget Superintendent Technical Services Signed: _____ Dated: _____ IPSC Pres. & COO Approval Signed: _____ Dated: _____ Route: 1. Package to Operations for approval to proceed (signature below) 2. Requisitions and copy of signed approval form to Purchasing
PROJECT INFORMATION	IPSC Contact David Spence Ext. 6449 Total Est. Costs: $ 688,000 Scheduled Start: March 2002 (Mtl. $ 630,000 Labor $ 54,000 Engring. $ 4,000)
INSTALLATION	Preconstruction Appvl (Oper.) _____ Date _____ Tagging 'CONSTRUCTION' update _____ Date _____ Work Pkg. to Planning (Engr.) _____ Date _____ QA/QC Completion (QA/QC Engr. _____ Date _____ Startup Complete (IPSC Engr.) _____ Date _____ Install. Complete (Planner) _____ Date _____ As-Built Pkg to Engr. (Planner) _____ Date _____ Released to Oper. (IPSC Engr.) _____ Date _____
PROJECT CLOSEOUT	Closeout Complete (IPSC Engr.) _____ Date _____ Tagging 'AS-BUILT' update _____ Date _____ Project Complete (SGC) _____ Date _____

IGS01-17

Variable Clearance Packing for IP Turbine Sections

Summary of Work Scope

The contractor (Turbocare) will supply and install variable clearance interstage packings and reduced clearance spill strips on the 9th through 14th stages of the IP turbines on both units. The contractor will also upgrade the variable clearance end packings on the HP turbine N1 and N2 packings not covered under the Alstom upgrade and provide new fixed end packings for the IP turbine.

Turbocare

- Provide new variable clearance interstage packings (9th -14th stages)
- Provide new reduced clearance spill strips (9th - 14th stages)
- Provide new conventional end packings and springs (N3 & N4)
- Upgrade/refurbish variable clearance packings on HP turbine (N1 & N2 outer rings)
- Perform all diaphragm and packing ring fit measurements
- Field machine packing segments to fit and compensate for diaphragm distortion
- Remove old spill strips and install new reduced clearance spill strips (9th -14th stages)
- Fit and install new interstage packings
- Document initial and final fit measurements on new packings

IPSC - Maintenance

- Receive and stage parts shipped from Turbocare for Unit 2 spring 2002 outage
- Add IP retractable packing installation to the outage schedule/timeline. Job will begin when the IP upper diaphragms are removed and will last approximately four days.
- Provide a 10' x 10' space on the turbine deck close to the diaphragm repair area for the Turbocare CNC machine
- Provide nominal 480-volt AC electrical service to the Turbocare CNC machine
- Provide overhead crane and operators to unload and setup CNC machine and move diaphragms and end packing ring segments

IPSC - Technical Services

- Contract/project administration
- QA/QC on packing and spill strip installation
- Final clearance measurements and performance calculations